We claim :

1. A brushless DC motor for electrical vehicle motorization comprising; a cylindrical rotor with twenty two poles constructed with segments of permanent magnet material alternatively magnetized north and south, a stator core of ferromagnetic material spaced inwardly of said rotor and defining a magnetic clearance gap therebetween, said stator core having twenty-four slots and defining teeth between said slots, a three phase winding with coils of insulated wire being wound around the teeth, therebeing one coil per slots with predetermined connection patterns: A', C, C, B', B', A, A, C', C', B, B, and A' resulting in reduced torque ripple without any slot or magnet skewing.

2. A brushless DC motor for electrical vehicle motorization comprising; a cylindrical rotor with twenty two poles constructed with segments of permanent magnet material alternatively magnetized north and south, a stator core of ferromagnetic material spaced inwardly of said rotor and defining a magnetic clearance gap, therebetween said stator core having twenty-four slots and defining teeth between said slots, a three phase winding with coils of insulated wire being wound around the teeth, therebeing two coils per slots with predetermined connection patterns: C', C, C', C, B, B', B, B', A', A, A', A, C, C', C, C', B', B, B', B, A, A', A, A' resulting in reduced torque ripple without any slot or magnet skewing.

3. A brushless DC motor as claimed in claim 1 or 2 having a multiple combination of additions of the number of said twenty-two poles and said twenty-four slots, such as forty-four said poles and forty-eight said slots, or sixty-six said poles and seventy-two said slots or ninety-six said poles and eighty-eight said slots; and a wound winding around said teeth with one of either one coil per slot or two coils per slot.

4. A brushless DC motor as claimed in claim 1 or 2 wherein three Hall sensors are mounted near said air gap at predetermined positions and fixed to or side some of said teeth.

5. A brushless DC motor as claimed in claim 4 having a power electronics pulse width modulation driver and control system, said pulse width modulation driver having a three phase inverter including six power mosfets, a current control system coupled to said inverter for generating 120 electrical degrees rectangular phase current pulses, said control system using a single switch modulation technique.

6. A brushless DC motor as claimed in claim 5 wherein said single switch modulation technique is comprised of three of said mosfets being connected as an upper side of said inverter and remain switched "on" by a modulation signal during a motor operation mode of said motor, three others of said mosfets being connected as a lower side of said inverter and used to measure motor phase currents during all sequences of the mosfets of said upper side.

7. A brushless DC motor as claimed in claim 6 wherein said mosfets of said upper side of said inverter are switched "off" during a generator operation mode of said DC motor, and wherein a modulation signal is applied on a gate of said three mosfets on said lower side of said inverter.

8. A brushless DC motor as claimed in claim 1 wherein said motor is also used as a wheel braking device when used in a generator mode, said rotor being connected to a hub of a wheel powered by said motor when in a motorized mode.

9. A brushless DC motor electronic pulse width modulation driver and control system comprising: a power electronics three phase inverter having six power mosfets, a current control system coupled to said inverter for generating 120 electrical degrees rectangular phase current pulses, an electronic control system for both a motor and a generator operation mode of said motor and using a single switch modulation technique.

10. An electronic control system as claimed in claim 9 wherein voltages across thereof said mosfets on a lower side of said inverter are used to generate a current measurement for the purpose of motor current control of said single switch modulation technique.

11. A brushless DC motor for braking a wheel of devices on which people are displaced by self-motorization or electric motor motorization, said motor comprising a cylindrical rotor cylindrical rotor with twenty two poles constructed with segments of permanent magnet material alternatively magnetized north and south, a stator core of ferromagnetic material spaced inwardly of said rotor and defining a magnetic clearance gap, therebetween said stator core having twenty-four slots and defining teeth between said slots, a three phase winding with coils of insulated wire being wound around the teeth said rotor being connected to a hub of said wheel, and control circuit means to control the torque of said motor and therefore its arresting force.

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